

## REMARKS/ARGUMENTS

### I. Fees

Applicant believes that there are no additional fees due at this time. *If there are any additional fees due in respect to this amendment, please charge them to Deposit Account No. 13-2165. Authority is hereby given to charge any such deficiency, or credit any overpayment, to Deposit Account No. 13-2165 Mathews, Collins, Shepherd & McKay. The Examiner is invited to contact the undersigned if further information is required.*

### II. 35 U.S.C. § 103(a)

It is the Examiner's opinion that claims 1-11 are unpatentable over US Patent No. 4,256,783 issued to Takada et al. (Takada) in view of US Patent No. 4,436,146 to Smolarek (Smolerak) and US Patent 4,142,581 to Yoshitomi et al. (Yoshitomi). Applicant traverses this rejection on grounds that Takada in view of Smolarek and Yoshitomi fail to teach each and every element of the claimed invention. In particular it is the Examiner stated that "With respects to claim 6, the references as set forth above fail to teach wherein the amount of water migrating from the upper chamber to the lower chamber fulfills the relation, amount of leakage (ml.hour per reaction tube)  $< \text{or} = 1.27 \times 10^{-5} \times \text{pressure difference (Pa)}$ , in a hydraulic test. However, given that Yoshitomi et al teaches the use of the same tube sheet/tube sealing means, it is fairly reasonable to assume that the apparatus of the prior art would leak just as much or less than claimed."

The applicant agrees with the Examiner on this point and respectfully wishes to bring to the Examiner's attention that Kadowski does not disclose or teach this limitation.

Furthermore, the Examiner stated that "With respects to claim 7, the references as set forth above fail to teach wherein the amount of water migrating from the lower chamber to the upper chamber fulfills the relation, amount of leakage (ml.hour per reaction tube)  $< \text{or} = 1.27 \times 10^{-5} \times \text{pressure difference (Pa)}$ , in a hydraulic test. However, given that Yoshitomi et al teaches the use of the same tube sheet/tube sealing means, it is fairly reasonable to assume that the apparatus of the prior art would leak just as much or less than claimed."

In response to an amendment after final wherein the applicants amended independent claim 1 to include the limitations of dependent claims 6 and 7 the Examiner stated that "incorporating dependent claims into independent claim 1, the scope of dependent claims 2-5 and 8-10 has been changed.

The Office Action stated that "it is fairly reasonable to assumed [sic] that the apparatus of the prior art would leak just as much or less than claimed." This assumption if not reasonable since, as indicated above, the claimed apparatus is neither disclosed nor suggested by the prior art. Additionally, there is no suggestion that it is desirable to restrict the amount of leakage of heat medium so as to operate the reactions at different temperatures in the two chambers, or that restricting the amount of leakage of water in a hydraulic test in order to restrict the amount of leakage is a suitable way to achieve the temperature control. Hence, persons skilled in the art would not combine or modify the prior art to lead to the present invention.

To further distinguish the invention from the prior art, claim 1 now recites the feature "wherein an amount of water migrating from the upper chamber to the lower

chamber, or from the lower chamber to the upper chamber, fulfills the relation, amount of leakage (ml/hour per reaction tube)  $\leq 1.27 \times 10^{-5} \times$  pressure difference (Pa), in a hydraulic test." In contrast, Takada et al. disclose a reactor in which leakage between the upper and lower chambers is permitted. Moreover, Takada et al. do not disclose or suggest that when operating the reactions in different temperatures in the two chambers, the leakage between the chambers should be restricted in order to achieve suitable temperature control. In fact, Takada et al. do not teach a closed system between the two chambers. Therefore, there is no motivation to define the amount of leakage in operating the reactions in different temperatures in the two chambers.

As the Examiner has not provided a reference or taken official notice of the limitations of claims 6 and 7 now incorporated into independent claim 1, applicants respectfully requests that the Examiner supply a suitable reference or withdraw the rejection under 35 U.S.C. § 103(a).

Claim 1 further recites the feature of an "expansion joint formed around the periphery of each of the chambers." This feature is neither taught nor suggested in Takada or Smolarek. Smolarek describes the expansion joints formed around the periphery of the reactor, and Yoshitomi et al. describes the connection structure between plates and tubes, which are partial structures of the presently claimed apparatus, but neither Smolarek, Yoshitomi, nor Takada disclose that these structures are applied to the reactor for gas-phase catalytic reaction, and that the amount of leakage of heat medium within the apparatus is restricted so as to operate the reactions at different temperatures in the two chambers.

The Office Action asserts that it would have been obvious to one of ordinary skill in the art to have included expansion joints as disclosed by Smolarek in the region between the tube sheet and reaction shell "motivated by the desire to improve the structural integrity of the resulting reactor." The Applicant suggests that this provided motivation rests on impermissible hindsight. The USPTO must demonstrate by substantial evidence that the prior art relied upon contains some suggestion or incentive that would have motivated an ordinarily skilled person in the art to modify the subject matter of the reference or combine the subject matter to achieve the claimed subject matter. *In re Fine*, 837 F.2d 1071, 1074 (Fed. Cir. 1988).

In this case the Office Action provides no such suggestion or incentive within the references but uses one of the problems addressed by the invention as motivation for modifying the prior art to achieve the claimed subject matter.

A prior art reference must describe and enable the claimed invention with sufficient clarity and detail to establish that the subject matter already existed in the prior art and that its existence was recognized by persons of ordinary skill in the field of the invention<sup>1</sup>. The general skill in the art does not supply missing knowledge for prior art.

The Federal Circuit stated:

To imbue one of ordinary skill in the art with knowledge of the invention in suit, when no prior art reference or references of record convey or suggest that knowledge, is to fall victim to the insidious effect of a hindsight syndrome wherein that which only the inventor taught is used against its teacher<sup>2</sup>.

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<sup>1</sup> *Elan Pharms. Inc. v. Mayo Found. for Med. Educ. & Research*, 304 F.3d 1221, 64 USPQ2d 1292, 1296 (Fed. Cir. 2002).

<sup>2</sup> *W. L. Gore & Assoc. v. Garlock, Inc.*, 721 F.2d 1540, 1553, 220 USPQ 303, 312-13 (Fed. Cir. 1983), *cert denied*, 469 U.S. 851 (1984).

While an obviousness rejection may be based on an Examiner's personal knowledge, the Examiner's ability to use personal knowledge is qualified by Section 1.107, which states:

When a rejection in an application is based on facts within the personal knowledge of an employee of the Office, the data shall be as specific as possible, and the reference must be supported, when called for by the applicant, by the affidavit of such employee, and such affidavit shall be subject to contradiction or explanation by the affidavits of the applicant and other persons.

The elements of the Applicant's amendment to the claims are not disclosed or taught by the cited references. The Applicant respectfully request withdrawal of the rejection under 35 U.S.C. § 103(a) that a suitable reference be provided with a citation to the portion of the reference that discloses the elements of the Applicant's invention or an affidavit under 37 C.F.R. §1.107(b) with respect to any rejection based partly on the Examiner's personal knowledge or judicial notice be provided.

As the Examiner has failed to make a prima facie case of based on the cited prior art, applicant respectfully requests withdrawal of the rejected under 35 USC 103(a).

### **III. Summary**

By this amendment, applicant has amended the claims to more clearly state the present invention. Applicant believes that claims 1-5 & 8-11, the only remaining claims are in condition for allowance.

Should there remain any questions or other matters whose resolution may be

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advanced by a telephone call, the Examiner is cordially invited to contact the applicant's undersigned attorney at his number below.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'D. Krivoshik', written over a horizontal line.

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Dated: June 20, 2005

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